

What is claimed is:

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1. A method of transferring a roll, comprising the steps of

5 bringing a roll loading shaft into engagement with a roll retainer shaft which holds a plurality of rolls thereon;

releasing said rolls from being held on said roll retainer shaft;

10 supporting one of said rolls;

moving and transferring said supported one of the rolls along said roll retainer shaft onto said roll loading shaft; and

15 fixing said one of the rolls to said roll loading shaft.

2. A method according to claim 1, wherein a tip end of said roll retainer shaft is pressed by a tip end of said roll loading shaft to release said rolls from being held on said roll retainer shaft under pressing forces.

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3. A method according to claim 1, wherein a mechanism associated with said roll retainer shaft is actuated by a rotating action of a mechanism associated with said roll loading shaft to move said rolls along said roll retainer shaft.

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4. An apparatus for transferring a roll held on a roll supply carriage, comprising:

a roll loading shaft for engaging a roll retainer shaft of said roll supply carriage which holds a plurality of rolls;

releasing means for releasing said rolls from being held on said roll retainer shaft;

10 transferring means for moving and transferring one of the rolls along said roll retainer shaft onto said roll loading shaft; and

fixing means for fixing said one of the rolls to said roll loading shaft.

15 5. An apparatus according to claim 4, further comprising:

a support member mounted on said roll loading shaft for abutting against a side of said one of the rolls thereby to support said one of the rolls; and

20 support member displacing means for displacing said support member along said roll loading shaft.

25 6. An apparatus according to claim 4, wherein said releasing means has a pressing member disposed at an axial center of said roll loading shaft for pressing an axial center of said roll retainer shaft to release said rolls from being held on said roll retainer shaft.

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7. An apparatus according to claim 4, wherein said transferring means comprises:

engaging means disposed at an axial center of said roll loading shaft for engaging a ball screw disposed at an axial center of said roll retainer shaft; and

rotating means for rotating said engaging means thereby to rotate said ball screw,

said one of the rolls held on said roll retainer shaft is transferred onto said roll loading shaft by a nut which moves upon rotation of said ball screw.

8. An apparatus according to claim 7, wherein said engaging means comprises an Oldham's coupling mechanism.

9. An apparatus according to claim 8, wherein said Oldham's coupling mechanism comprises:

a hub rotatable by said rotating means;

a slide element slidable in a direction substantially perpendicular to a rotatable shaft of said hub; and

a sleeve disposed around said hub and said slide element for limiting a range in which said slide element is slidable with respect to said hub,

said slide element engaging said ball screw.

10. An apparatus according to claim 4, wherein said fixing means has a plurality of finger members displaceable toward an outer circumferential surface of said roll loading

shaft to hold an inner circumferential surface of said one of the rolls.

11. A roll supply carriage comprising:

5 a roll retainer shaft for holding a roll thereon;  
fixing means disposed on a tip end of said roll  
retainer shaft for fixing said roll to said roll retainer  
shaft;

10 A switching mechanism for selectively holding said roll  
in a fixed state achieved by said fixing means and releasing  
said roll from a fixed state achieved by said fixing means;  
and

15 a moving mechanism for moving said roll along said roll  
retainer shaft.

12. A roll supply carriage according to claim 11,  
wherein said fixing means has finger members displaceable  
toward an outer circumferential surface of said roll  
retainer shaft for engaging said roll.

20 13. A roll supply carriage according to claim 11;  
wherein said switching mechanism comprises:

25 a cam for bringing said fixing means selectively into a  
position to hold said roll and a position to release said  
roll; and

displacing means for displacing said cam.

14. A roll supply carriage according to claim 13, wherein said displacing means is disposed on a tip end of said roll retainer shaft and movable along said roll retainer shaft thereby to displace said cam.

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15. A roll supply carriage according to claim 11, wherein said moving mechanism comprises:

a ball screw disposed at an axial center of said roll retainer shaft; and

a nut threaded over said ball screw,

said roll is moved by being pushed by said nut.

16. A roll supply carriage according to claim 11, wherein said roll is made of a photosensitive material and is accommodated in a light-shielded case having a labyrinth structure and a shutter for loading said roll into and unloading said roll out of said case.